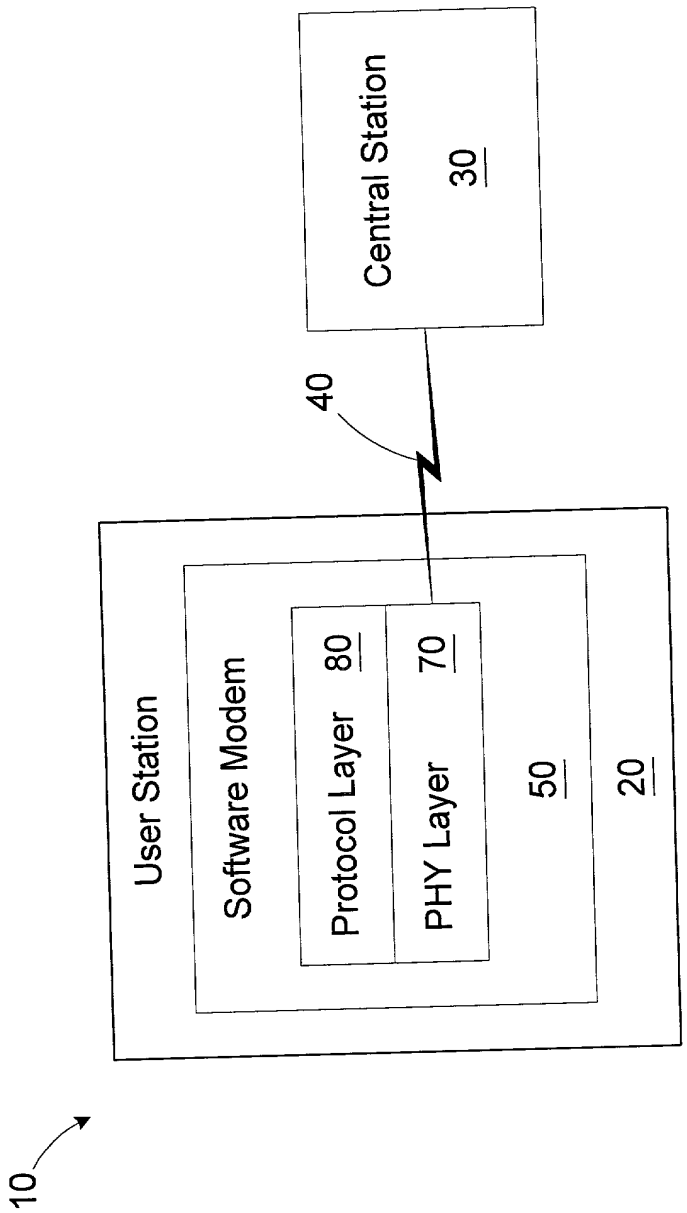

Central Station
30
40
User Station
Software Modem
Protocol Layer
80
PHY Layer
70
50
20
10

Figure 1

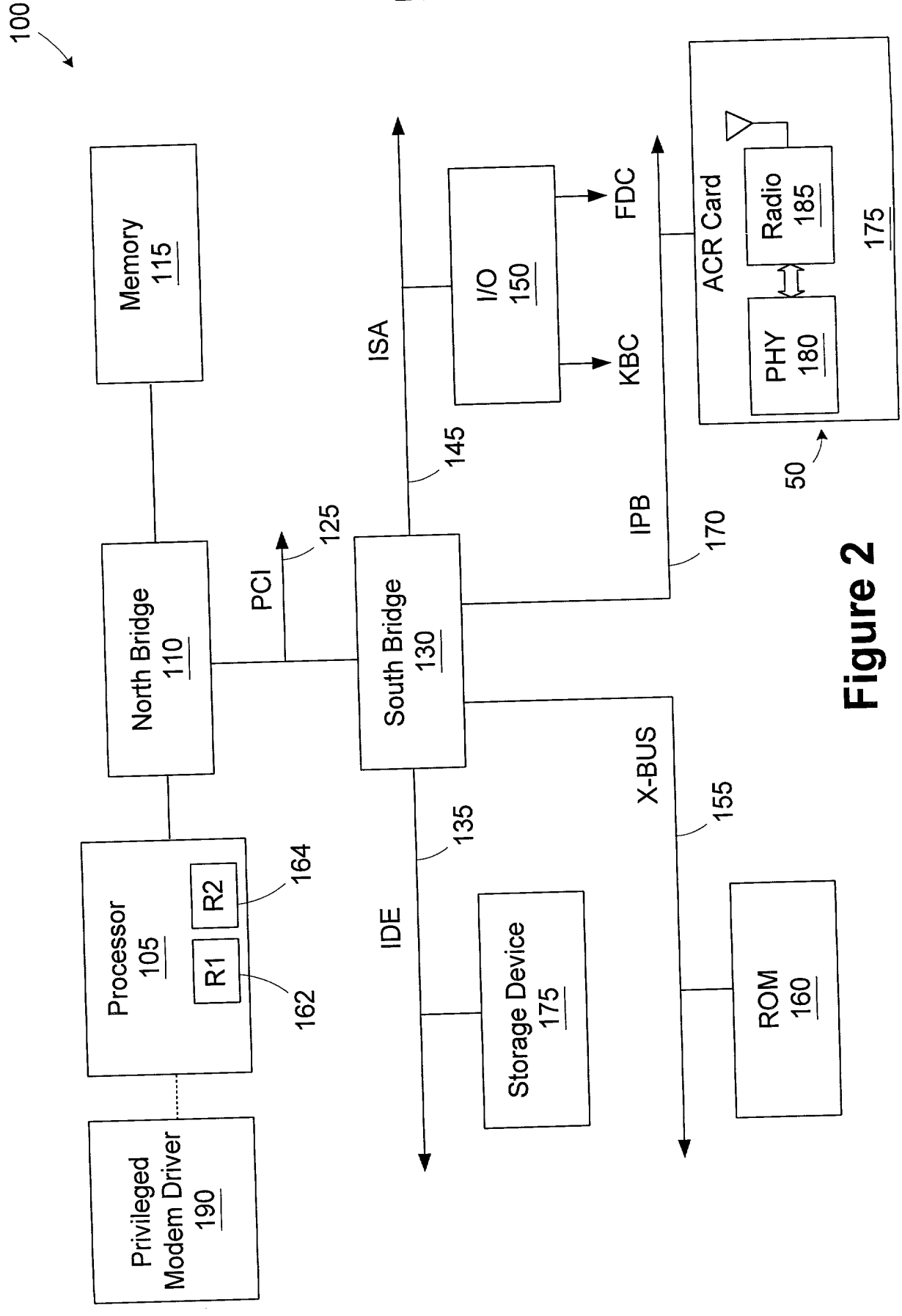

100
Memory 115
North Bridge 110
Processor 105
R1
R2
162
164
Privileged Modem Driver 190
PCI
125
South Bridge 130
ISA
145
I/O 150
FDC
KBC
IPB
170
ACR Card
Radio 185
PHY 180
175
50
IDE
135
Storage Device 175
X-BUS
155
ROM 160

Figure 2

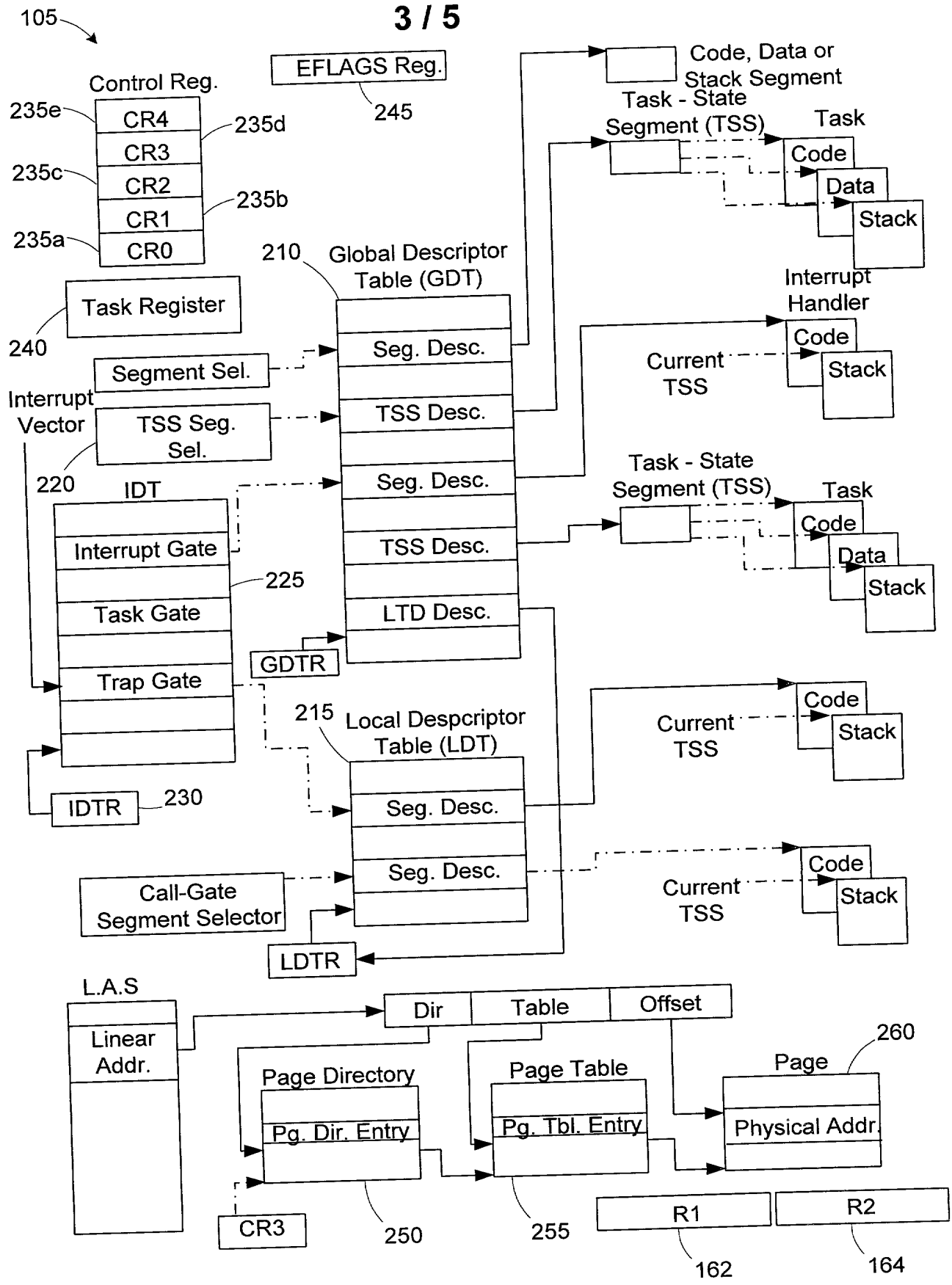

105
EFLAGS Reg.
245
Control Reg.
235e
CR4
235d
CR3
235c
CR2
CR1
235b
235a
CR0
Task Register
240
Segment Sel.
Interrupt Vector
TSS Seg. Sel.
220
IDT
Interrupt Gate
225
Task Gate
Trap Gate
IDTR
230
210
Global Descriptor Table (GDT)
Seg. Desc.
TSS Desc.
Seg. Desc.
TSS Desc.
LTD Desc.
GDTR
215
Local Despcriptor Table (LDT)
Seg. Desc.
Seg. Desc.
Call-Gate Segment Selector
LDTR
Code, Data or Stack Segment
Task - State Segment (TSS)
Task
Code
Data
Stack
Interrupt Handler
Code
Stack
Current TSS
Task - State Segment (TSS)
Task
Code
Data
Stack
Code
Stack
Current TSS
Code
Stack
Current TSS
L.A.S
Linear Addr.
Dir
Table
Offset
Page Directory
Pg. Dir. Entry
Page Table
Pg. Tbl. Entry
260
Page
Physical Addr.
CR3
250
255
R1
R2
162
164

Figure 3

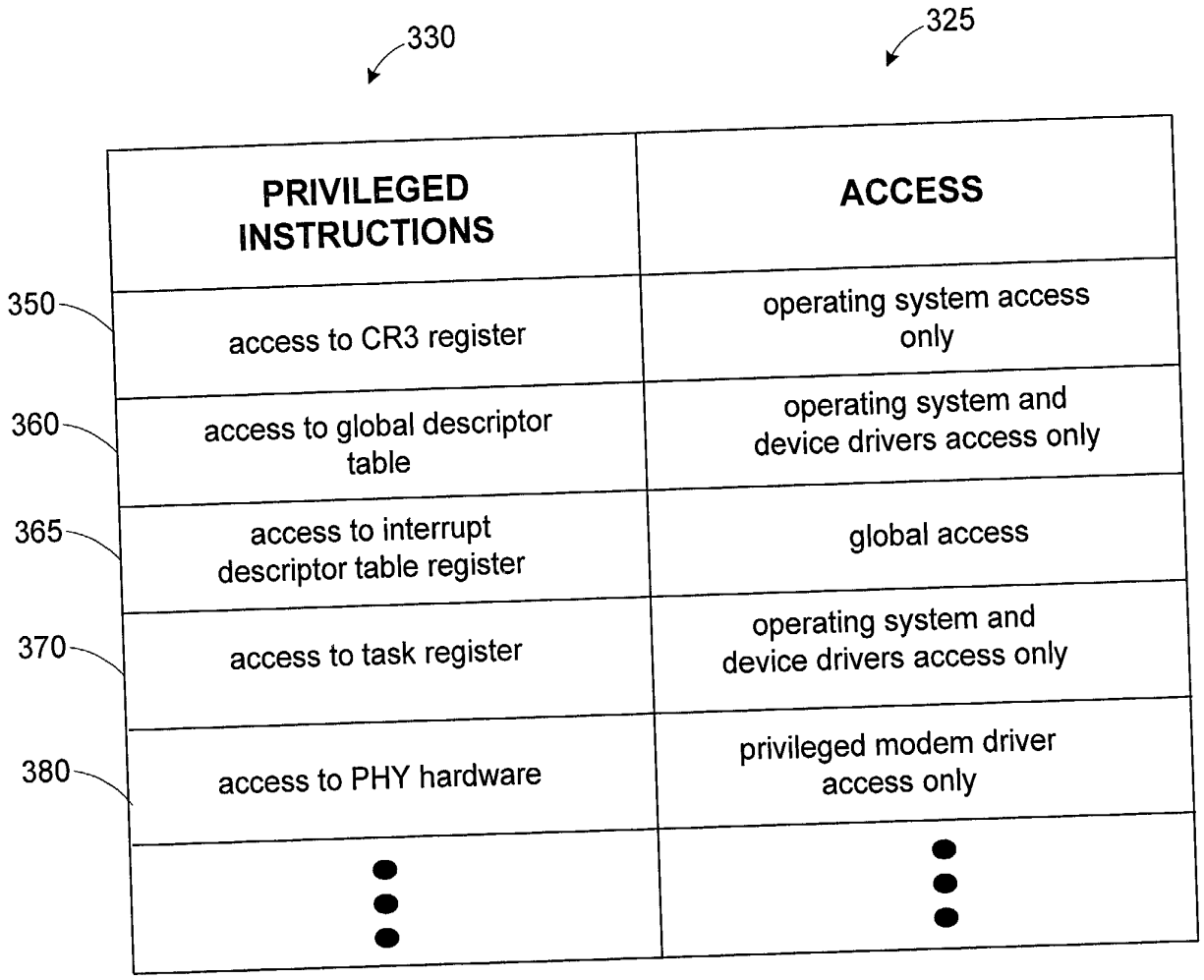
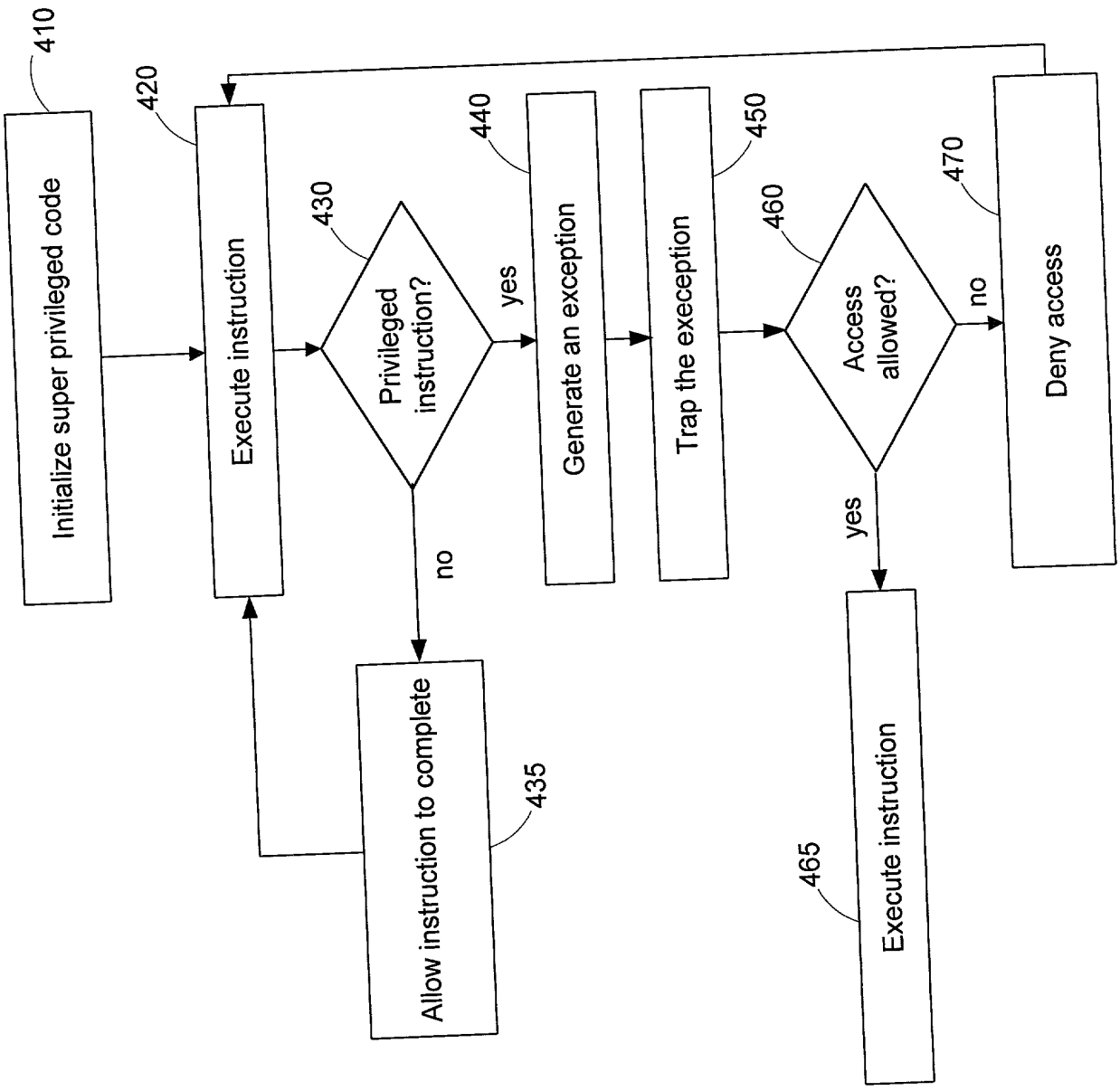

330
325
PRIVILEGED INSTRUCTIONS
ACCESS
350
access to CR3 register
operating system access only
360
access to global descriptor table
operating system and device drivers access only
365
access to interrupt descriptor table register
global access
370
access to task register
operating system and device drivers access only
380
access to PHY hardware
privileged modem driver access only

Figure 4

Figure 5


410
Initialize super privileged code
420
Execute instruction
430
Privileged instruction?
yes
no
440
Generate an exception
450
Trap the exception
460
Access allowed?
yes
no
470
Deny access
435
Allow instruction to complete
465
Execute instruction